Library

HERPETOLOGICA

A JOURNAL DEVOTED TO THE STUDY OF
REPTILES AND AMPHIBIANS

Published at THE CHICAGO ACADEMY OF SCIENCES

Edited by CHAPMAN GRANT and WALTER L. NECKER

Vol. 1 Chicago, Illinois, July 15, 1937 No. 3

A new snake of the genus Sonora from Mexico, with comments on S. michoacanensis.

EDWARD H. TAYLOR
Department of Zoology, University of Kansas

Among the small snakes collected in Mexico by Dr. Hobart Smith and myself are two species which I refer to the genus *Sonora*. One of these I believe to be a new species.

SONORA ERYTHRURA sp. nov.

TYPE: No. 5440 ♂ E.H.T. Collected about 10 miles south of Taxco, Guerrero, on highway, July 17, 1936. E. H. Taylor, Coll.

DIAGNOSIS: A species with a red or pinkish ground color, banded anteriorly with paired black bands enclosing a yellow or gray-cream band; posteriorly with alternating black and white bands with no evidence of red between them; tail uniform light coral-pink. The dark anterior paired bands and the single dark bands posteriorly, encircle the body. Nasal single; 7 upper labials; 7 lower labials, five touching the elongate chinshields; one preocular and two postoculars.

DESCRIPTION OF THE TYPE: Head rather broad, narrowed anteriorly; snout not flattened or wedge-shaped; rostral very distinctly broader than high, the part visible above equal to length of the internasal suture; width of internasal more than one and one half times its length, the scale narrowed near median line; prefrontal a little wider than the internasal, its width more than one and one half times its greatest length; frontal length a little more than one and one half times its width, very slightly shorter than the parietal, and about one third longer than its distance from the end of the snout; length of parietal one and one half times its greatest width, equal to its distance from the rostral; supraoculars about half as

wide as frontal in interocular region; nasal single, twice as long as wide; loreal small, very slightly longer than wide; preocular narrow, or approximately the same extent as the loreal; two subequal postoculars; temporals 1+1+2, the third bordering the parietals is more than double the size of the first (relationship of temporals on the left side slightly distorted); seven upper labials in the following order of increasing size, 3, 2, 1, 5, 7, 4, 6; the third and fourth enter orbit; mental small, triangular; first pair of lower labials in contact; seven lower labials, five touching the first pair of chinshields, which are very large and in contact for all save a minute portion of their length; second pair of chinshields, one fourth or less of the first pair, separated by one scale; an enlarged postgenial scale, as large or larger than the second chinshields, lies between the latter and the labials; scale rows about neck, at first ventral, 18; on anterior and posterior part of body, 15 rows; anal divided, the scale flap bordered laterally by five scales increasing in size posteriorly; ventrals, 163, the two anterior narrow, the first separated from the second chinshields by five scales; subcaudals 47, the terminal scale single, rather elongate. Total length, 142 mm.; tail, 24 mm.

COLOR IN LIFE: Head with a large black spot covering most of the parietals and extending on the rostral and on sides of head; the color is less dense anteriorly and portions of the labials and the anterior head scales show some lighter flecking; the spot is slightly angular behind; this followed by a gray-white band narrowed medially, but widening greatly on the sides extending forward to include the fifth upper labial; two and one-half scale rows behind the parietals is a black band, wide medially (seven scale rows) but narrowing laterally to the width of one scale, reaching to the outer scale row; this followed by a grayish-white band narrowed dorsally, then widening laterally where it joins the white area which covers chin and anterior part of throat; this is followed by a narrow black band about four and one-half scales wide dorsally, which encircles the body much narrowed below; following this band the ground color is red, extending to the latter third of the body with a series of six markings consisting of paired black bands enclosing a gray-cream band. The black bands narrow ventrally and encircle the body, while the cream band is interrupted in the middle ventral region by a black line connecting the two black rings. These marks are separated by reddish interspaces (the width of from four to ten scales) the wider spaces anterior; latter third of body banded black and gray-white, the whitish bands about half the width of the dark bands. These, for the most part, encircle the body, irregularly ventrally, and the first two are notched laterally with pink; tail entirely reddish, more intense than the ground color mentioned on body.

REMARKS: The species is related to *Sonora michoacanensis* (COPE), but differs in the characteristic color and marking details. The dark bands encircle the body, and there are no markings on the tail. The nasal is single (variable in *michoacanensis*, but usually partially divided), and there are seven lower labials, five instead of four touching the first chinshield.

The specimen was collected on a rock cliff, from under a stone superimposed on a flat rock.

Sonora michoacanensis (Cope)

Contia michoacanensis Cope, Proc. Amer. Philos. Soc., xxii, 1885, p. 178. Type locality, Michoacan, Mexico, Duges collector; Bull. U. S. Nat. Mus., no. 32, p. 81.

Homalocranium michoacanense Gunther, Biologia Centrali-Americana,. Reptilia and Batrachia, Jan. 1895, p. 150, (p. 104), pl. xxxvi, figs. B and C. (Michoacan, Duges, Coll; Mezquital del Oro, A. C. Buller, Coll.).

Elapomorphus michoacanensis Cope, Trans. Amer. Philos. Soc., XVIII, 1895, p. 218.

Scolecophis michoacanensis Boulenger, Cat. Snakes Brit. Mus., 2nd Ed., Vol. III, 1896, pp. 211, 212 (Mezquital del Oro, Jalisco, 2 spec. ♂, V. 166, s.c. 45 and ♀ v. 170, s.c. 42).

Chionactis michoacanensis Cope, Ann. Rept. U. S. Nat. Mus., 1898 (1900), p. 936.

Three specimens of *Sonora michoacanensis* (COPE) were collected by Dr. Hobart Smith near Magdalena, Jalisco. Nos. 4659, 4660, July 11, 1935, and No. 4661, July 29, 1935. The males and females show considerable sexual dimorphism in the markings. The general ground color dorsally and ventrally, in both sexes, is a pinkish-red. The primary markings consist of pairs of black bars enclosing a cream or yellow bar, the three forming a unit. The black bars are widened medially, and narrowed laterally, their outer ends tending to meet; they terminate on the side above the outer first or second scale row.

In no. 4661 ♂ this pattern is maintained regularly throughout the length of the body. On the tail the three markings that occur completely encircle the tail, and the cream marks on the body are almost gray due to an increase in pigment. The dorsal ground color is somewhat brownish-red. There is a curved black spot on the head, involving eyes and the scales on side anterior to eye, the frontals, part of the parietals and the supraoculars; the tip of the snout is brownish-gray. Behind this is a grayish-cream band, narrowed medially, but widening greatly laterally, and is lost in the whitish coloration of the chin and anterior part of the throat; this is followed by a broad, black band, which may be interpreted as one of the first pairs of bars; it is about eight scales wide medially. The reddish or brownish-red spaces between the markings vary, widest on anterior part of the body (six or seven scale lengths), while posteriorly they are narrower (two to four scale lengths). On the tail the red spaces

are again widened (equal to twelve to fourteen scales). There are fifteen of the spots on the body, counting the nuchal, and three on the tail.

No. 4659 ♂ agrees in all pertinent details. Here there are seventeen spots with three on the tail. The posterior black band of the twelfth, and the anterior black band of the thirteenth marking are fused medially, as are the same bands on the fourteenth and fifteenth markings, the reddish ground color merely notching their sides; the final mark on the extreme tip of tail is incomplete.

In no. 4660 ♀, interpreting the markings as above, there would be twenty-six markings (26 creamy-white marks), but they have become so crowded that the black bars of the last thirteen markings have fused medially, in some cases their entire width and the red interspaces are either not indicated or merely make lateral notches. Where the red interspaces are present, these are much narrower than in males. There are three tail markings which encircle the tail and here the red interspaces are narrower than those in the males.

The scale characters and measurements of E.H.T., nos. 4659 ♂, 4661 ♂ and 4660 ♀ respectively are as follows: ventrals, 161, 163, 171; subcaudals, 44, 45, 40; scale formula, 20, 15, 15 in all; anal divided in all; nasal, divided below nostril in all; upper labials 7-7 in all; lower labials 6-6 in all; temporals 1+2 in all; scales touch first chinshields, 3-4, 4, 3; scales between second chinshields and first ventral, 5, 5, 6; preoculars, 1 in all; postoculars, 2 in all, total length, 241, 240, 266; tail, 44, 44, 44.

The placing of *michoacanensis* and *erythrura* with the genus *Sonora* I believe can scarcely be questioned, as the tooth formulae of these specimens are practically identical with that of *Sonora semiannulata* (from Kansas); and the scale formulae offer no reason for the recognition of these under the generic designation *Scolecophis* as was done by Boulenger (*loc. cit.*) in the case of *michoacanensis*. I have not examined *Scolecophis atrocinctus*, but strongly suspect that it likewise belongs to *Sonora*.

HERPETOLOGICA is published and edited by Major Chapman Grant and Walter L. Necker and will be issued occasionally from the Chicago Academy of Sciences. Subscription rate, $1.00 per four numbers, single copies fifty cents. Original papers on any phase of the study of reptiles and amphibians are acceptable; manuscripts may be sent to either editor. A small charge will be made for papers over five pages in length. Galley and, if necessary, page proofs will be furnished authors. Separates, fifty cents per page per hundred.

MAJOR CHAPMAN GRANT
2970 Sixth Ave.
San Diego, Calif.

WALTER L. NECKER
2001 N. Clark St.
Chicago, Ill.

PLATE VI

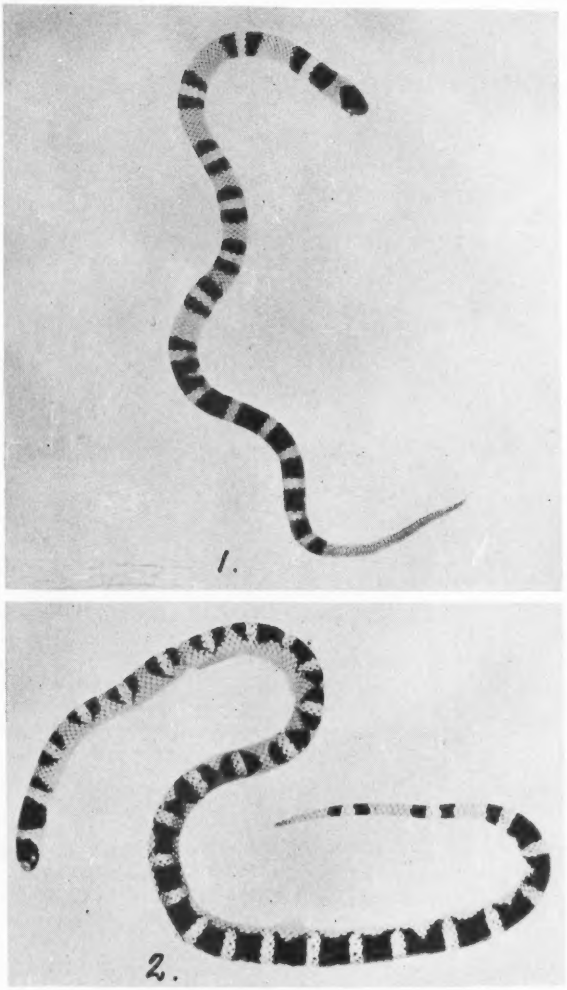


Fig. 1. **Sonora erythrura**, sp. nov., Type, 10 miles south of Taxco, Guerrero, Mexico.

Fig. 2. **Sonora michoacanensis** (Cope). Female from Magdalena, Jalisco. (4660)

PLATE VII

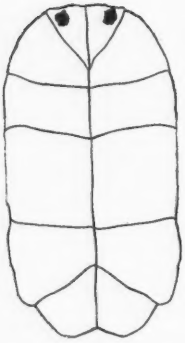


Fig. 1

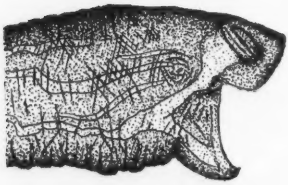


Fig. 2

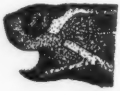


Fig. 3

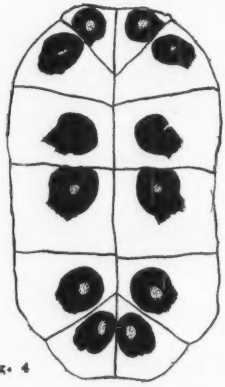


Fig. 4

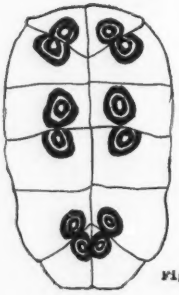


Fig. 5

Fig. 6

Fig. 1. Plastron of **P. s. scripta**, Raleigh, N. C. Fig. 2. Head pattern of **P. s. scripta**, Gainsville, Fla. Fig. 3. Head pattern of **P. s. scripta_x troostii** intergrade, Jackson Co., Fla. Fig. 4 Plastron of same. Fig. 5 Plastron of **P. s. troostii**, New Orleans, La. Fig. 6. Head pattern of same.

The Status of Pseudemys scripta and Pseudemys troostii

A. F. Carr, Jr.
Department of Biology, University of Florida

It has recently become evident to me that the two turtles, *Pseudemys scripta* (Schoepff) and *Pseudemys troostii* (Holbrook) are geographic races of the same species. Boulenger (1889) thought it "preferable to regard *C. elegans* (*troostii*) as a race of *C. scripta*." He used the term race, however, in the sense of variety, and believed *elegans* to be merely an occasional variant of *scripta*. In 1892 O. P. Hay restored *troostii* to specific rank with the following remarks: "Dr. Boulenger regards this terrapin as only a variety of *C. scripta* (*Trachemys scabra* Ag.). However at present it appears to me that there are sufficient differences in . . . the two forms to justify their being regarded as distinct species. Their geographical distribution is likewise different." Siebenrock (1909) lists *elegans* as a subspecies of *scripta* without comment. American herpetologists, however, have given the forms binomial designation, altho several writers have recognized the close relationship between them. Agassiz (1857) says of *Trachemys troostii*, "it represents, in the valley of the Mississippi, the *Trachemys scabra* of the southern Atlantic States . . . " Brimley (1920) presents evidence that there is intergrading of plastral patterns in the two forms in Georgia.

There are several more or less clearly defined characters by which typical specimens of *scripta* and *troostii* may be distinguished. These may be summarized as follows:

P. scripta.—Carapace short, deep, rough, and usually keeled; head striping reduced; a conspicuous oblong or triangular yellow spot behind eye; markings of plastron most often confined to gulars or to gulars and humerals, and consisting of a single, solid, black, smudge-like spot on each plate.

P. troostii.—Carapace more depressed, more elongate, smoother, and usually without keel in adult; side of head with 3 to 7 stripes extending from hind margin of eye posteriorly, the dorsal stripe often with a blood-red ovate expansion; plastral pattern more completely expressed: one or more spots often present on each plate; plastral spots usually ocellated.

An examination of material from several portions of the ranges of the two forms has brought out the following facts:

1. The number of plastral smudges tends to increase as *scripta* approaches the range of *troostii*.
2. The difference in lateral head markings is merely the modi-

fication of a basic pattern consisting essentially of two broad parallel lines; the yellow postocular blotch of *scripta* is the result of the fusion of the upper and lower lines, the upper becoming obsolete behind the blotch as the animal matures.

3. The *troostii* characters probably represent the more generalized and primitive condition, since for the most part they amount merely to the persistence of features found in the young of both races. In the young of a nearly typical *scripta* stock (Alachua Co., Fla.) I have found all the diagnostic characters of *troostii*. The anterior plastral spots are often ocellated or composed of concentric rings. The postocular blotch is sometimes incomplete, and occasionally lacking entirely. The upper lateral head stripe is almost always uninterrupted behind the blotch, and twice I have seen its anterior portion bright red.

4. In specimens from the Appalachicola drainage, 200 miles west of Gainesville, the *troostii* characters occur with much greater frequency than in Gainesville specimens, and rarely may all be found in the same individual.

5. Melanistic males of *scripta* from Leon County, Florida are almost indistinguishable from those of Mississippi Basin *troostii*.

The above outlined geographic and variational gradient seems to me to demand the application of the trinomial to these two forms. Since Schoepff's name is the older, the typical race must be called *Pseudemys s. scripta*, and the more Western form, *Pseudemys scripta troostii*.

Specimens examined:

P. s. scripta.—NORTH CAROLINA: Raleigh 13, Wilmington 1; SOUTH CAROLINA; Charleston 7; GEORGIA; Savannah 2; FLORIDA: Alachua Co. 35, Lafayette Co. 1, Levy Co. 2, Leon Co. 6, Jackson Co. 40, Ockaloosa Co. 5.

P. s. troostii.—LOUISIANA: Southern Louisiana 65, New Orleans 11, Schreiver 2; MISSISSIPPI; Washington 1, Yazoo City 1; TENNESSEE: 2 (the types)*, Union Co. 8; ARKANSAS; Crittendon Co. 1, Lawrence Co. 12.

Intergrades.—GEORGIA: Roswell 1; LOUISIANA: New Orleans 3; MISSISSIPPI 1, FLORIDA; Alachua Co. 5, Leon Co. 1, Jackson Co. 16.

For permission to examine specimens and for many other courtesies I am indebted to Dr. Leonard Stejneger and Dr. Doris M. Cochran, United States National Museum, Mr. Arthur Loveridge, Museum of Comparative Zoology, Mr. C. S. Brimley, Raleigh, North Carolina, Dr. Norman Hartweg, Museum of Zoology, University of

* I have recently located the types of *P. s. troostii*. They are Phil. Acad. Nat. Sci. 179 and 180. 179 is highly melanistic, 180 much less so. Both are stuffed specimens. 180 is decapitated.

Michigan, Dr. Henry W. Fowler, Philadelphia Academy of Natural Sciences, Mr. Percy Viosca, Southern Biological Supply Company, and Mr. Stewart Springer, Zoological Research Supply, Englewood, Florida.

LITERATURE CITED

AGASSIZ, LOUIS
1857 Contributions to the Natural History of the United States of America. Vol. I, Part II, p. 435.

BOULENGER, G. A.
1889 Catalogue of the chelonians, rynchocephalians, and crocodiles in the British Museum (Natural History). p. 78.

BRIMLEY, C. S.
1920 Notes on Pseudemys scripta Schoepff, the yellow-bellied terrapin. Copeia, No. 87.

HAY, O. P.
1891 The batrachians and reptiles of the state of Indiana. Rep. State Geologist, p. 570.

SIEBENROCK, F.
1909 Synopsis der rezenten Schildkroeten. Zool. Jahrb., Sup. X, p. 464.

The Herpetological Fauna of Bermuda

E. R. Dunn and Roger Conant
Haverford College and the Zoological Society of Philadelphia

The purpose of this article is to record the addition of a lizard to the fauna of Bermuda; to list the known reptiles and amphibians (excepting marine forms); and to record as far as possible the time and manner in which the various forms reached the islands.

Anolis iodurus Gosse. The senior author was informed in 1929 that an *Anolis* was estabished in Bermuda. Mr. and Mrs. M. M. De Wolf of New York City stated that they saw them in August of that year "in low bushes and on grape trees about a quarter of a mile to the east of Elbow Bend at a place called Grape Bay. These lizards first attracted our attention by the irridescent throat when distended."

Professor William Reitzel produced an additional report as a result of a visit to Bermuda during the Christmas season of 1934. He saw lizards, which, from his report, were anoles, and was told that they had been known in Bermuda for about ten years. At the time of Reitzel's visit it was still confined to the main island.

Recently the junior author received three living specimens from Mrs. George R. White of Philadelphia who collected them August 30, 1936 near Coral Beach on Bermuda. Examination of these, and comparison of them with specimens in the Academy of Natural Sciences of Philadelphia, shows that they are *Anolis iodurus* Gosse, described from and endemic to Jamaica. Therefore this species has in some way reached Bermuda from Jamaica, and has established itself in Bermuda.

Two eggs were found in the cage with the specimens on September 3. These measured 9.9 x 6.8 mm. and 10.3 x 6.7 mm. respectively.

An uncatalogued and unnamed male specimen has just turned up in the Philadelphia Academy, with the data "Hamilton, Bermuda, April 1934, Morgan Hebard".

Eumeces longirostris (Cope). This species was first recorded by Jones in 1859 (Naturalist in Bermuda) as *Scincus, cf. fasciatus*, and was described by Cope in 1861 (Proc. Acad. Nat. Sci. Philadelphia, 13:313,—cotypes, six specimens, U. S. N. M. 4737, collected by J. H. Darnell) as *Plestiodon longirostris*. This is known only from Bermuda, differs widely from other members of the genus, and is undoubtedly endemic prehuman.

Bufo marinus (LINNAEUS). For this species we have the definite information by Waite (1901, Science, 13:342, as *Bufo agua*) that it was purposely imported by Captain Nathaniel Vesey about 1885. He "engaged the master of a vessel plying between Hamilton and Demerara, British Guiana, to secure for him some . . . the toads were brought from Demerara to Hamilton, and were carried out to Devonshire by a native, who must have purloined some of the animals, for individuals were seen near the native's home (Tuckertown), ten miles distant soon afterward." Waite gives this from an interview with Captain Vesey in July, 1900.

Eleutherodactylus martinicensis (TSCHUDI). According to Pope (1917, Bull. Mus. Comp. Zool., 61:125) this species, called by him *Eleutherodactylus johnstonei* BARBOUR (synonymous with the older *martinicensis*) was introduced accidentally, "brought in at Admiralty House, Spanish Point, about 1886, probably coming from Jamaica". He also quotes a letter from Dr. Crozier (written in 1917) as follows "The 'whistling frogs' were here before 1880 in very small numbers. In that year Lady Bedford, wife of Admiral Bedford, brought to Admiralty House from Jamaica a pair which were liberated. (So says Mrs. Abbot, editor of the Gazette)."

The senior author has examined Bermudan specimens, kindly collected and presented by the De Wolfs, and has no hesitation in identifying them as *martinicensis*. *E. martinicensis* has also been introduced into Jamaica (*cf.* Dunn, 1926, Proc. Boston Soc. Nat. Hist., 38:122). The introduction is said to have been by Lady Blake about 1890, thus about ten years after it is said to have been taken from Jamaica to Bermuda by Lady Bedford. Without inquiring too closely into this peculiar relationship between titled Englishwomen and *Eleutherodactylus martinicensis*, an article in the Kingston Gleaner in 1895 says that it had become common around Kingston in the "last few years". It is a native of the lower Lesser Antilles. Its introduction into Jamaica and into Bermuda was at any rate approximately in the same decade. In 1917 it ranged from the Causeway to Paget, according to Pope, who also found it abundant south of Castle Harbor and "heard a single one in the town of St. George showing that they have crossed the Causeway".

Eleutherodactylus luteolus (GOSSE).Pope (*l. c.* p. 129) records this Jamaican species from the home of Mr. J. M. Godet in Paget about opposite Isle of White, as not being found west of Paget, as occuring at Hamilton, and at Pembroke Crossroads but not further east, and as having been heard in Paget for at least ten years (i. e. since 1906).

SUMMARY:

Endemic.

Eumeces longirostris (COPE). Reported in 1859.

Arrivals not intentionally introduced.

Eleutherodactylus luteolus (GOSSE). Native of Jamaica. Arrival circa 1906. Reported in 1917.

Anolis iodurus (GOSSE). Native of Jamaica. Arrival circa 1924. Reported in this paper.

Intentional introductions.

Eleutherodactylus martinicensis (TSCHUDI). Native of Lesser Antilles. Introduced via Jamaica. circa 1880. Reported in 1917.

Bufo marinus (LINNAEUS). Native of mainland tropical America. Introduction circa 1885. Introduced from British Guiana. Reported in 1901.

This list is called to the attention of those interested in the North American Check List, to consider whether any or all of these five species should be included.

The Adobe Tick on Gopherus agassizii

CHARLES F. HARBINSON
Museum of Natural History, San Diego

Specimens of the Adobe tick, *Ornithodorus turicata* (DUGES), were collected by Major Chapman Grant on October 15, 1935, from four *Gopherus agassizii* (COOPER), in the possession of John Hilton of Thermal, California. About twenty individuals, unattached and lively, were clustered in the cracks between the scutes on each of these tortoises. The tick has previously been reported from *Gopherus polephemus* (DAUDIN) as *O. americanus* by H. G. Hubbard (1894, Insect Life, 4:302+315), as well from several species of mammals.

Notes on the Tiger Salamander, Ambystoma tigrinum, in Washington and Idaho

J. R. SLATER
Department of Biology, College of Puget Sound

Ambystoma tigrinum has been recorded from the following locations in the State of Washington: Medical Lake, Spokane County; Colville, Stevens County (Slevin 1928:34); Connell, Franklin County; Chelan, Chelan County (Slater 1934:189). On April 6, 1934 the writer took dead *A. tigrinum* from a pond by the State Highway 11.3 miles east of Wilbur, Lincoln County. On July 18, 1936 he took a larval specimen 73 mm. in length from a small pond 1.5 miles east of Bingen, Klickitat County. This extends the known range in this state more than 100 miles west of the Connell record and 180 miles south of the Chelan record. It also tends to support the Portland, Oregon record which Jewett (1936:71) questions. (Bingen is 65 miles east of Portland; there the Columbia River has flood conditions nearly every year in May or June. I believe the pond from which I took the larva was not flooded this year). From the location of these six stations in Washington, it would appear that *A. tigrinum* should occur in every county in Washington east of the Cascade Mountains.

Dr. Gordon D. Alcorn, a former student of mine, reports that he saw, on April 19, 1936, the larvae of this species 7 to 8 inches in length (estimated) in Lake Chatcolet, Kootenai County, Idaho. He took a few specimens and presented them to the Department of Zoology, University of Idaho. From this report and the records given by Slevin (1928:34) for southeastern Idaho and the Columbia River region of Oregon, this salamander should be found in many counties of Idaho and eastern Oregon. Knowing the similarity of the geographical conditions in central Washington and especially of north central Washington, to those of south central British Columbia, and knowing that *Scaphiopus hammondii* (Logier 1932:319) is common to both of these regions, the writer predicts that *A. tigrinum* will soon be discovered in British Columbia.

Having failed to find the eggs of this salamander on several trips in eastern Washington, we dredged the lake 10 miles north of Chelan (about 9 miles by the new highway) on April 5, 1935 but obtained no transformed adults and no bunches of eggs even though the dredge-net was dragged through the lake a dozen times at different places. Many larvae were seen, as was the case the year before, and about 25 were captured, put in cans, and taken to the laboratory.

This lake is about 150 by 250 feet and lies in a deep hole in a pass between hills 600 to 700 feet high. It is not a mountain lake but is in the Columbia Plateau formation only about 2 miles west of the Columbia River, in a cut and depression caused by the erosion of some ancient water course. Both the hills have long talus slopes

which provide excellent retreats for adult salamanders. On one side of the small lake there are a few cattails and grasses among which a few *Hyla regilla* were heard. The water of the lake is fairly clear and we could see to a depth of 18 or 20 feet. The most abundant vegetation in the water is *Chara* on which a variety of snails in very large numbers was found. The *Chara* extends out from the water's edge in dense masses for about 12 to 15 feet and there forms a "precipice". This arrangement provides excellent sunning, feeding, and hiding places for the larval *A. tigrinum.*

There is evidence that the water of the lake is receding, but as far as could be ascertained, the lake has not gone dry in recent years. Many other small lakes in eastern Washington went dry from 1931 to 1935 that had not done so in previous years, according to the people living around them.

When the above mentioned larvae were transfered to aquaria, it was found that some of them had deposited eggs in the cans during the journey to Tacoma; some of them continued to lay eggs in the aquaria. As far as I can determine, this is the first published record of *A. tigrinum* laying eggs in its larval stage in the United States.

From a study of these eggs, it was determined that eggs of the same species had been taken at Medical Lake, Spokane County, Washington, on April 6, 1934. It was believed previously that the eggs would be found in large masses (Storer 1925:66-67), but I found them deposited singly or in small groups attached to vegetation near the edge of the lake only a few inches below the surface. Some of the eggs deposited in the aquaria were measured, sketched, and preserved two hours after being laid. The average measurements are: egg 1.9 mm; jelly coats: inner 2.6 mm., middle 3.5 mm., outer 4.5 mm. in diameter. When the eggs are deposited in small groups, each egg does not have three separate jelly coats. One group of five eggs shows that each egg has the inner coat distinct; three of the five have the middle coat in common, as do the other two eggs; while all five have the outer coat in common. These spawning habits and general arrangements of the eggs compare very closely with Storer's (1925:65-66) descriptions for *A. californiense* (=*A. tigrinum*) except that the measurements for the fresh spawn as given above are smaller; but not much smaller than the three eggs pictured by Storer (1925: fig. 18, pl. 8) in the lower part of his figure. Allowing for magnification of his picture, these three eggs average a little less than 7 mm. in diameter of outer jelly coat. This increase in size would be expected in eggs a day or so old. The other eggs in his picture appear to be several days or weeks old as the embryos are well along toward hatching. Storer's (1925:66) figures are larger than his figure 18 would seem to indicate; but in general it appears that we are dealing with eggs of the same species.

The larvae of *A. tigrinum* are exceedingly shy, the only ones the

writer has seen in the water in the daytime, were those in the lake 9 miles north of Chelan and the one captured at Bingen. They could not be found even with flash lights on two different occasions in Medical Lake, Spokane County, where we know thousands of them exist (Slater 1934:189-190). Dr. Alcorn reports that the larvae he saw in Lake Chatcolet, Idaho, were active and could be observed during the day. We have looked into many lakes and ponds on several field trips in central and eastern Washington where this species very likely lives but none could be seen. On a few occasions some dead larvae have been found floating at the edge of a pond but no live ones were seen. On my first visit to the lake 9 miles north of Chelan, it was very difficult to obtain the larvae with long handled dip nets. This extreme wariness agrees very closely with Storer's (1925:68) description.

A few of the larvae taken at the lake 9 miles north of Chelan on April 5, 1935 were preserved or given away. The rest transformed in the aquaria at different times during the summer with the exception of one which transformed during the latter part of June 1936. It is supposed that a scarcity of food in the aquaria hastened the transformation of most of them during the summer of 1935. Brehm (1912:65) showed that the larval period may be prolonged or shortened by the amount of food supplied.

The size, shape, and distribution of dull yellow areas (blotches) varied considerably in the transformed specimens. Some had small spots over all dorsal and lateral surfaces but most of them had larger areas of yellow. In some these areas joined so that the animal appeared yellowish with blackish blotches. One, which is still alive (August 25, 1936), shows only a few small black blots. Three which transformed just previous to August 1, 1935 were very similar to the three figured in Brehm (1912:69). This color pattern does not agree very closely with that given by Storer (1925:61) but perhaps it was on account of a limited number of adult specimens that he did not see the variety of color patterns.

LITERATURE CITED

BREHM, ALFRED
1912 Tierleben, Vol. 4, Lurch und Kriechtiere Vol. 1, revised by Franz Werner, Bibliographisches Institut, Leipzig und Wien.

JEWETT, S. G., Jr.
1936 Notes on the amphibians of the Portland, Oregon, area. Copeia, 1936:71-72

LOGIER, E. B. S.
1932 Some account of the amphibians and reptiles of British Columbia. Trans. Royal Can. Inst., 18:311-336.

SLATER, J. R.
1934 Ambystoma tigrinum in the state of Washington. Copeia, 1934: 189-190.

SLEVIN, J. R.
1928 The amphibians of western North America. Occ. Pap. Cal. Acad. Sci., 16, 152 p., 23 pls.

The Status of the Leopard Frogs, *Rana brachycephala* and *Rana pipiens*

CARL F. KAUFFELD
Staten Island Zoological Society

Herpetologists who have been working with amphibians of the northeastern States have been aware for some time that confusion existed among the frogs called *Rana pipiens* SCHREBER. Since there was general misconception existing with regard to one of the forms concerned, it was feared that an attempt to relieve this condition could only result in greater chaos, consequently no one has cared to attack the problem. The matter, however, is far more simple of solution than it would seem.

At first it was believed that the leopard frogs of southern New Jersey and southeastern Pennsylvania were either a distinct form of *pipiens* or conspecific with *sphenocephala* (Wright 1932, p. 419 and p. 434; Wright & Wright, 1933, p. 186-187). Such a conclusion threatened nomenclatorial confusion since the type locality of *pipiens* was believed to be in southern New Jersey. In a previous issue of this journal (1936, p. 11), I definitely established the type locality of *pipiens* as being New York.

A comparison of the supposedly distinct form from southern New Jeresy with specimens from northern New Jersey, Staten Island, Long Island, and southeastern New York showed that none of these frogs could be separated on any character whatsoever. I finally concluded that all these must be typical *pipiens*. What then is the form which is generally considered *pipiens* and yet differs vastly from these specimens?

For some inexplicable reason, *Rana brachycephala* of Cope never gained the recognition it deserved although *sphenocephala* of the same author, a form much less distinct from true *pipiens* than *brachycephala*, has been universally accepted. *Rana brachycephala* remained in complete obscurity from the time of its description (Cope 1889, p. 403-406). No one, so far as I can find, even bothered to throw it into synonmy until Kellogg (1929, p. 203), placed *brachycephala* as well as *sphenocephala* in the synonomy of *pipiens*. There is no justification for treating either of these two forms in this way and *brachycephala* must be revived to supply a name for the leopard frog which has so often been erroneously figured and described as *pipiens*. (Dickerson 1908, pl. 11; Wright & Wright, *loc. cit.*, pl. 71).

Rana brachycephala is no mere color variant. It exhibits characters which immediately distinguish it from *pipiens* and *sphenocephala*. In fact, these frogs are so distinct from one another that they can readily be identified on sight—even at a distance of ten feet. The characters which Cope (*loc. cit.*) considered diagnostic under

the subspecies of *Rana virescens* (=*pipiens*) still serve to distinguish these forms from one another. His diagnosis of *brachycephala* follows:

> Head shorter and more obtuse, entering the length three and a half times; males without or with rudimental external vocal vesicles; dorsal spots larger, widely yellow bordered; tibial cross-bands complete; no longitudinal band on the front of the thigh.

We know that coloration in these frogs is highly variable, thus if we ignore color we have only the shorter head and absence of vocal sacs to identify this form.* However, there are additional characters which set off *brachycephala* from *pipiens* and *sphenocephala*. It attains a greater size than either of the others; its legs are shorter, the tibio-tarsal articulation failing to reach the snout; the webbing of the feet is fuller and more extensive; the dorso-lateral fold is thicker, more glandular, widening toward the eye and extending on to the supraocular region. The latter character I consider particularly diagnostic.

The more obvious characters of these three species follow:

Rana sphenocephala

Snout long; head length entering body length 2-2½ times; tibio-tarsal articulation extends beyond snout; webbing of toes indented, usually does not include terminal phlange of toes; dorso-lateral fold high, narrow, not extending onto the supraocular region; usually there are numerous other short dorsal folds in both sexes; a white tympanic spot is always present.

Rana pipiens

Snout shorter; head length entering body length 3-3½ times; tibio-tarsal articulation just reaches the snout; webbing of toes more deeply indented than in *sphenocephala*; dorsal and dorso-lateral folds as in *sphenocephala;* a white tympanic spot usually present.

Rana brachycephala

Snout very short; head length entering body length 3½-4 times; tibio-tarsal articulation does not reach the tip of the snout; toes fully webbed, web includes terminal phlanges of toes; no folds other than the dorso-lateral which is wide and flat and extends onto the supraocular region. I have seen no specimens with a white tympanic spot.

*This character requires more thorough investigation.

No doubt further study will reveal additional characters differentiating these species both in the adults and in the larvae.

As the material which Cope had at the time he described *brachycephala* showed (which, by the way, numbered 182 specimens and not 15 as Kellogg, *loc. cit.*, mistakenly estimated) this species occurs in the Transition Zone, particularly the Alleghanian Division, the southern extension of the Canadian, and the Upper Austral west of the Appalachian Highlands. Other material substantiates this distribution. We find *brachycephala* in the highlands of northwestern New Jersey, but absent from the Carolinian to the east in southern New York and northeastern New Jersey. *Rana pipiens* replaces *brachycephala* in the Piedmont (the Carolinian division east of the Appalachian Highlands) and in the Coastal Plain. *Rana sphenocephala* is a purely Austral form confined to the Austroriparian Division.

Schreber's type of *pipiens* was undoubtedly from the Carolinian of southern New York; neither his description nor his plate could be the frog which Cope described as *brachycephala.*

We may define the range of *brachycephala* and *pipiens* as follows:

Rana brachycephala (Cope.)

Southern Canada and New England except extreme southern Connecticut, New York except the southeastern portion, northwestern New Jersey, northern and western Pennsylvania, west to the Pacific Coast States.

Rana pipiens Schreber

Extreme southeastern New York, Long Island, southern Connecticut, New Jersey except the northwestern portion, southeastern Pennsylvania, Delaware and Maryland, south throughout the Coastal Plain and west into Texas.

Rana pipiens burnsi WEED is quite probably a race of *Rana sphenocephala. Rana kandiyohi* WEED is undoubtedly only a color variety of *Rana brachycephala.* It is difficult to decide the status of leopard frogs from Mexico. If they are synonomous with *Rana brachycephala* then the name *austricola* COPE, has precedence over *brachycephala* COPE, although it is possible that these frogs are more closely related to *sphenocephala.* In that event *sphenocephala* would have to be called *austricola.*

LITERATURE CITED

COPE, E. D.
1889. The batrachia of North America. Bull. U. S. Nat. Mus. 45.

DICKERSON, MARY
1908. The frog book. Doubleday, Page & Co., New York.

KAUFFELD, C. F.
1936. New York the type locality of Rana pipiens Schreber. Herpetologica, 1:11.

KELLOGG, REMINGTON
1929. Mexican tailless amphibians in the United States. National Museum. Bull U. S. Nat. Mus. 160.

WRIGHT, A. H.
1932. Life-histories of the frogs of the Okefinokee Swamp, Georgia. North American Salientia (Anura) No. 2. MacMillan Co., New York.

WRIGHT, A. A. & A. H. WRIGHT
1933. Handbook of frogs and toads. Comstock Pub. Co., Ithaca, N. Y.

The Proper Name for the African Lizard, *Scincus officinalis*

CARL F. KAUFFELD
Staten Island Zoological Society

In his excellent paper, Notes on the recent reptiles and amphibians of Egypt (Proc. Zool. Soc. London 1933, p. 788), Major Stanley S. Flower has pointed out that the name so long in use for the well-known North African skink, *Scincus officinalis* LAURENTI, is not tenable. Linnaeus described this same lizard in the tenth edition of the *Systema Naturae*, 1758, ten years before Laurenti's description appeared. Many authors have completely ignored the priority of Linnaeus's name *Lacerta stincus*. According to Flower this animal must henceforth be known as *Scincus stincus*.

Since *stincus* is obviously a typographical error for *scincus*, which is taken from the Greek *scincos*, meaning a lizard, it could readily have been changed to *Scincus scincus;* the International Rules of Zoological Nomenclature justify such an action in Article 19 and in various opinions rendered with regard to "*lapsus calami* and typographical error".

Although this same misprint occured again in the twelfth edition of the *Systema Naturae*, apparently Linnaeus himself finally noticed the error. Thus we find the name appearing in the thirteenth edition as *Lacerta scincus*.

Two New Frogs from Jamaica

W. Gardner Lynn
Department of Zoology, Johns Hopkins University

In the course of some work done in Jamaica during the past summer with the assistance of a Grant-in-Aid from the National Research Council, about 800 frogs belonging to the genus *Eleutherodactylus* were collected. Most of these belong to species already known from the Island. However, nine specimens of *E. ricordii* collected at Montego Bay provide the first record of this species from Jamaica and in addition there are in the collection representatives of two new species which are described herewith.

The author is greatly indebted to Dr. E. R. Dunn for examining these specimens and to Dr. Doris M. Cochran and Mr. Arthur Loveridge for affording opportunities to examine the Jamaican frogs in the collections of the United States National Museum and the Museum of Comparative Zoology.

ELEUTHERODACTYLUS ANDREWSI, sp. nov.

Type.—U.S.N.M. No. 102515, an adult male from Chester Vale, Parish of St. Andrew, Jamaica. This estate lies in the Blue Mountains near Silver Hill Gap at the junction of the Clyde and Yallahs Rivers at an elevation of 3200 feet. Type collected by Harriett N. Lynn, June 21, 1936.

Diagnosis.—Most closely allied to *E. luteolus* (Gosse) among other Jamaican frogs, from which it differs in the shorter hind legs, smaller adult size and in its distinctive color pattern. The most notable features of the latter are the very well-developed dorsolateral markings and the semilunar black patches above the groins.

Description of Type.—Body stocky, head somewhat narrower than body; hind limbs short, heels not meeting when legs are flexed with femurs held at right angles to body; heel reaching to tympanum when leg is brought forward along the body; tongue rather narrow, spatulate, not emarginate behind, free about one-third its length; vomerine teeth in a long arched series extending well beyond the outer margin of the choanae, separated medially by about one-fourth their length; snout short, rounded; length of eye equal to distance from eye to tip of snout; canthus rostralis distinct, rounded; greatest width of head equal to distance from tip of snout to occiput; interorbital width about equal to width of upper eyelid; diameter of tympanum equal to one-half the diameter of the eye, its distance from the eye equal to its own diameter; fingers free, first finger slightly shorter than second; discs of fingers small, that

of the third finger covering about one-fourth of the tympanum; toes only very slightly webbed, subarticular tubercles well developed; two metatarsal tubercles, the outer small, the inner well developed; skin smooth above and below, dorso-lateral line distinct.

MEASUREMENTS OF TYPE.—Tip of snout to vent, 20 mm.; width of head, 8 mm.; tip of snout to posterior edge of tympanum, 8 mm.; diameter of eye, 3 mm.; fore leg from axilla, 9 mm.; hind leg from vent, 26 mm.; vent to heel, 14 mm.

COLORATION.—In life the coloration was as follows: dorsal side bronze-brown, groin red, black line through eye to middle of flank, semi-lunar black patches above groin, triangular black patch extending from above vent onto hinder surfaces of thighs, belly and throat mottled brown and white. In alcohol the red patch in the groin has disappeared and the somewhat iridescent bronze color of the dorsal side has faded to a light brown.

PARATYPES.—Eight other specimens (U.S.N.M. Nos. 102516 to 102523) resemble the type rather closely, differing only in that some are considerably darker on the dorsal surface and exhibit slight rugosity. These were all taken in the same general region as the type at elevations from 3200 to 4500 feet and were collected over the period from June 13 to July 21, 1936. Most were found beneath stones in rather dense woods. None exceed 21 mm. in length.

HABITS AND CALL.—This frog appears to be a creature of the deep woods in the higher mountains. Its call was heard up to the 5000 foot level but only along the more heavily wooded parts of the trail. The call is given from the ground and is a high-pitched, oft-repeated whistle or squeak which may be transliterated as "eek". The voice has a ventriloquial quality which makes it very difficult to trace.

Named for Professor E. A. Andrews who, over a period of many years, has done much to increase our knowledge of the fauna and flora of Jamaica.

ELEUTHERODACTYLUS ALTICOLA, sp. nov.

TYPE.—U.S.N.M. No. 102524, an adult from the summit of Blue Mountain Peak, Parish of St. Thomas, Jamaica. Elevation 7,360 feet; the highest point in the island. Collected by W. G. Lynn, July 14, 1936.

DIAGNOSIS.—A small short-legged species with back and belly smooth; vomerine teeth small; discs on fingers small.

DESCRIPTION OF TYPE.—Tip of snout to vent, 21 mm.; width of head, 9 mm.; tip of snout to posterior edge of tympanum, 8 mm.; diameter of eye, 3 mm.; fore leg from axilla, 13 mm.; hind leg from vent, 29 mm.; vent to heel, 17 mm.

COLORATION.—Colors in life: dorsal side mottled, slate gray and brown; groin red; belly white, peppered with small dark spots; a rather obscure black line running from the eye over the typanum and down to the shoulder; light stripe from vent onto hinder surface of thighs. In alcohol there is little alteration except for the disappearance of the flash markings in the groin.

PARATYPES.—The twenty-four paratypes (U.S.N.M. Nos. 102525 to 102548) exhibit considerable variation in color pattern. In most, the mottling of light and dark patches on the dorsal side is more striking than it is in the type. Seven specimens have light interocular bars, edged posteriorly with black, and several individuals have broad yellowish lateral stripes extending from eye to groin. There is also some variation in the length of the vomerine teeth which, in some specimens, extend to the level of the inner edges of the choanae and slant rather sharply posteriorly towards the midline. Eight of the paratypes are adults taken with clutches of eggs. Three of these adults, upon dissection, proved to be males; the other five were females. All the paratypes except one were beneath stones on or near the summit of Blue Mountain Peak between July 11 and July 14, 1936. U.S.N.M. No. 102548 was collected just above New Haven Gap on Sir John Peak, elevation about 5600 feet, on June 7, 1936. Some of the paratypes present a shagreened appearance of the skin due to the fact that those individuals were originally preserved in formalin. All specimens preserved in alcohol are nearly or quite smooth.

HABITS AND HABITAT.—The species is apparently confined to the highest parts of the Blue Mountains since rather extensive collecting at lower elevations did not reveal its presence. All the specimens were found beneath stones beside trails or in open woods. The eggs of this species differ from those of other frogs of the region in their adhesiveness and in the small number laid. They are usually attached to roots or sticks or to the surfaces of small stones lying beneath larger rocks. They adhere strongly to such objects and to each other. The eight clutches of eggs collected averaged 17 eggs per clutch; the greatest number in any one clutch being 21, the least, 10. By way of contrast, the nests of *E. nubicola*, another montane species in Jamaica, contain about 45 eggs which show no tendency to cling together. I did not succeed in identifying the call of this species.

PLATE VIII

a

b

1

a

c

b

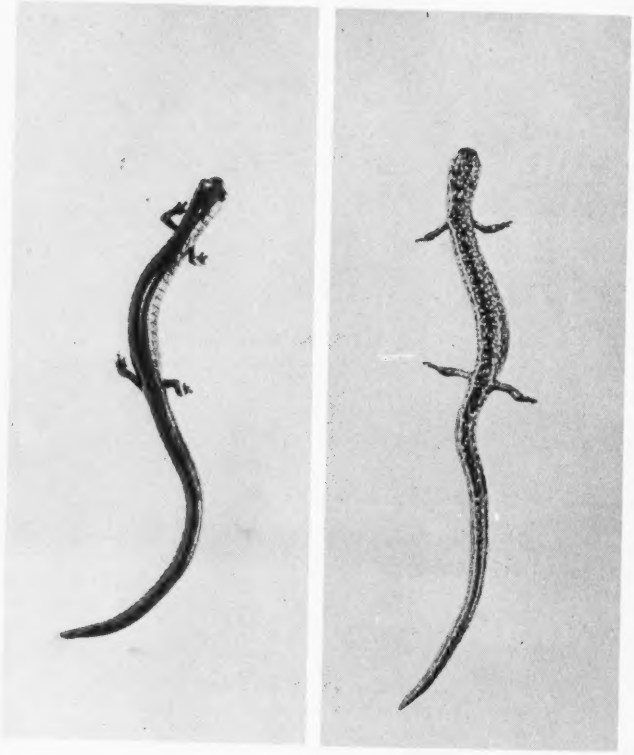
d

2

Fig. 1. a—Type of **E. andrewsi**; photograph of alcoholic. b.—Diagram of roof of mouth.

Fig. 2. a—Type of **E. alticola**, photograph of alcoholic. b—Egg mass of **E. alticola** attached to root. c—Adult male with a mass of eggs attached to stone, photograph from life. d—Diagram of roof of mouth.

PLATE IX



PLETHOPSIS WRIGHTI Bishop
Male, actual length, 97 mm.

A Remarkable New Salamander from Oregon

SHERMAN C. BISHOP
Department of Zoology, University of Rochester

A new species of salamander which apparently belongs to a genus not before known, is represented by a series of twenty-one specimens secured during a recent collecting trip.

PLETHOPSIS, gen. nov.

Pleth (=Plethodon); *opsis* (=resemblance)

A plethodontid with 4-4 toes; tongue attached by a central pedicel and by a ligament in front, the two structures connected by a thin membrane; two small premaxillae, nasal spines separate, a fontanelle; parietals only partially ossified, widely separated above; frontals only partially ossified, separated above, bony parts limited to strips above the orbits; in some, at least, nasals incompletely ossified; septomaxillae and prefrontals not discernable as separate ossified elements; internal naris a notch in the prevomer; vomerine and parasphenoid teeth in series slightly separated or continuous; two or three enlarged teeth on each premaxilla of male, sometimes perforating the lips; large males with multiple testes; no tail constriction; no marked sexual dimorphism. Genotype the species described below.

This genus is related to *Plethodon* from which it differs in having only four toes, vomerine and parasphenoid teeth often forming a continuous series, incompletely ossified parietals and frontals and multiple testes in large males. From *Hemidactylium* it differs in lacking the basal constriction of the tail, in the condition of the parietals and frontals, in the number of costal grooves, the multiple testes and the lack of a marked sexual dimorphism. It resembles *Batrachoseps* in the incompletely ossified parietals and frontals but differs in the possession of two premaxillae, larger hind limbs, in the number and disposition of the teeth, multiple testes and lack of worm-like body.

PLETHOPSIS WRIGHTI sp. nov.

DESCRIPTION.—This is a slender species of moderate size. Head moderately broad, widest immediately behind the eyes, converging slightly posteriorly; on the side of the head an impressed line extending from the posterior angle of the eye to meet the upward extension of the gular fold; costal grooves 16-17; 6½ - 7 intercostal spaces between appressed toes; tail subquadrate in section near base, somewhat compressed distally; toes 4-4, webbed one half their length, the innermost of each foot rudimentary, the others in order of length, from the shortest, 4-2-3. Vent of female a simple slit; in the

male it is bordered by a narrow depressed area and the lips are thrown into folds.

The vomerine series long, in the male usually orginating behind the outer margin of the inner naris, normally 12 to 15 in number; in the female usually 10 to 14 teeth in the series which originate behind the middle of the inner naris; in both sexes the vomerine teeth curve inward and then backward, where they are separated by a distance about equal to the long diameter of the inner naris; parasphenoid patches long, club-shaped, narrowly separated. In ten of a series of twenty specimens, the vomerine and parasphenoid series are separate, in three males and one female the series are continuous on both sides, and in one male and five females the series are continuous on one side and slightly separated on the other.

In life this species has the dorsal band varying from bright chestnut to reddish-brown, in some the band is strongly suffused with dusky on the snout and trunk; the band is brightest on the basal half of the tail and is usually irregularly invaded by black on the posterior half. The band originates on the snout and involves the entire dorsal surface of the head including the eyes, and extends along the trunk well above the level of the legs. The lateral margins of the band may be nearly straight but in some individuals are irregular and broken. The upper sides bordering the dorsal band are deep brown or black to the level of the limbs, below which the sides are heavily flecked with many small, irregular, bluish-white spots on a slate ground color; the belly is dark slate to almost black, flecked with bluish-white, the middle line only being relatively free; upper surface of the limbs dark with small light spots; the throat, ventral surface of the tail and lower surface of the limbs strongly flecked with the lighter spots. In a few individuals the light dorsal band is reddish-brown along the margins and blotched with black through the center. Two of the largest individuals have the band very dull brownish-yellow. The species is named in honor of Dr. A. H. Wright of Ithaca, N. Y., and Miss Margaret R. Wright of Rochester, N. Y.

HOLOTYPE.—Male 91 mm. long, U. S. National Museum No. 102445; ALLOTYPE, female 95 mm. long, U. S. National Museum No. 102446; collected in woods bordering Mt. Hood highway 8.7 miles southeast of Sandy, Clackamas County, Oregon, June 15, 1936. Fifteen specimens of both sexes; also 4 adults and 2 juveniles from 6.3 miles southeast of Sandy, same date.

FIELD NOTES.—The following remarks having to do with habitat and associated species are taken from my field notes. The forest bordering the Mt. Hood highway at this locality consists of mixed soft and hardwoods occupying the base of a pastured slope. The first three specimens were found beneath the bark of a rotting log, probably fir. Several others were found beneath chips and logs on

the surface of the ground but the majority of specimens were lying between pieces of bark piled in a heap at the base of a stump. Some specimens when found were coiled in a close spiral with the head held much like that of a snake. The specimens were collected during intermittant showers in small, open, glade-like areas.

In the same general locality were taken several aquatic and land-stage newts, *Triturus similans*, one juvenile *Aneides ferreus*, one adult *Ambystoma gracile* and one adult *Ensatina eschscholtzii*. Companions in the field who helped in the collection of specimens were Miss Margaret R. Wright of Rochester and Mr. Stanley G. Jewett, Jr., of Portland, Oregon.

In the table below measurements and other structural features are indicated for twenty specimens. The last column refers to intercostal spaces between appressed toes.

Sex	Length in mm. Total	Trunk	Tail	Costal grooves	Teeth vomerine	parasphenoid	Intercostal spaces
♂	97	47	50	17-17	8-9	separated	7
♂	..	46	..	16-16	12-10	separated	7
♂	97	44	..	17-16	13-12	continuous	7
♂	93	43	50	17-17	12-13	nearly continuous	6-⅓
♂	..	43	..	17-17	12-13	continuous one side	7
♂	91 type	42	49	17-17	15-15	continuous	7
♂	..	42	..	17-17	12-13	separated	7
♂	..	41	..	16-16	13-15	continous	7
♂	..	40	..	16-16	12-13	separted	6-⅓
♂	..	39	..	16-16	9-9	separated	7
♂ juv.	..	33	..	16-16	12-13	separted	7
♀	..	46	..	16-16	10-14	continuous one side	7
♀	95	45	50	16-16	11-13	continuous one side	7
♀	84	44	40	16-16	13-14	one side	7
♀	..	43	..	17-17	14-12	one side	7
♀	84	41	43	17-17	12-12	slightly separated	7
♀	..	37	..	17-17	9-10	separated	7
♀	..	35	..	17-17	10-10	separated	7
♀	..	35	..	17-17	14-10	continuous one side	7
♀ juv.	..	28	..	17-17	10-10	continuous	7

Three Additional Specimens of Eumeces gaigei

JOSEPH R. BAILEY
Contribution from the Department of Biology, Haverford College, No. 37.

Recently while checking over an uncatalogued collection from New Mexico in the Academy of Natural Sciences in Philadelphia, three specimens of *Eumeces gaigei* were discovered. Since so little is known of this rare skink it seems worth while to place on record the characteristics of these specimens.

All three are from the Black Range, Grant County, New Mexico, and two bear the further data, Kingston Trail, 9000 feet. Two are large adults in an excellent state of preservation, and the third is a juvenile, somewhat soft, but its scale and color characters may be made out without difficulty. The color of the adults is similar, except that the larger is less strongly marked. The color is so like that described for this species by Taylor (Kan. Univ. Sci. Bull., 23: 356-357) that his description might almost have been drawn from these specimens. The only difference is that the dorso-lateral light lines are continuous rather than rows of light spots. The ground color is light olive-brown. The color of the juvenile is more nearly like that described and figured by Taylor (*loc. cit.* p 352 and plate 28, fig. 4) for a young *multivirgatus* than that for a juvenile *gaigei* (p. 357). The ground color is dark brown with well defined dorso-lateral light lines originating on the anterior superciliary and extending onto the tail. A more dim, but still well defined, median light line reaches from the tail to the nuchal where it forks to reunite again at the posterior tip of the rostral. Lateral light lines extend from the white upper labials to just before the hind limbs, but are poorly developed behind the fore limbs. The throat is light, and the belly mottled with the dark ground color. The tail is lavender.

At certain stages the young of *multivirgatus* and *gaigei* must resemble each other very closely, but may be separable with comparative material.

These specimens have been compared with the type of *multivirgatus* (ANS 9371), and appear to be stouter as well as differing in coloration. The following table gives measurements (millimeters), and scale counts of the specimens in question.

ANS. No.	Snout to vent	Axilla to groin	Circumference	Circ. A. to g.	Hind leg	Snout to ear	Dor. scales	Tail	Subcaudals
9371	61.5	40.0	29.5	73.8%	16.5	10.0	61		
20819	68.5	40.0	34.0	85.0%	19.5	11.5	62		
20820	61.0	38.5	33.5	89.9%	19.0	11.5	61		
20821	25.5				9.0	6.0	63	31.5	96

All have 24 rows of scales around the middle of the body. In ANS 20819 the postnasal is lacking on one side, and is very small on the other. No other scale variations seem significant.

My thanks are due Dr. E. H. Taylor for answering several questions, and for an expression of opinion concerning the specimens. From the written descriptions furnished him he is in accord with my identification.